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Introduction

This book includes a collection of station-based activities to provide students with opportunities to practise and apply the mathematical skills and concepts they are learning. It contains five sets of activities for each of the four strands: Number and Operations; Geometry and Measurement; Algebra; and Data Analysis and Probability. You may use these activities in addition to the direct instruction lessons, or, especially if the pre-test or other formative assessment suggests it, instead of direct instruction in areas where students have the basic concepts but need practice. The debriefing discussions after each set of activities provide an important opportunity to help students reflect on their experiences and synthesise their thinking. It also provides an additional opportunity for ongoing, informal assessment to inform instructional planning.

Implementation Guide

The following guidelines will help you prepare for and use the activity sets in this book.

Setting Up the Stations

Each activity set consists of four or more stations. Set up each station at a desk, or at several desks pushed together, with enough chairs for a small group of students. Place a card with the number of the station on the desk. Each station should also contain the materials specified in the teacher's notes, and a stack of Student Activity Sheets (one copy per student). Place the required materials (as listed) at each station.

When a group of students arrives at a station, each student should take one of the activity sheets to record the group's work. Although students should work together to develop one set of answers for the entire group, each student should record the answers on his or her own activity sheet. This helps keep students engaged in the activity and gives each student a record of the activity for future reference.

Forming Groups of Students

All activity sets consist of four stations. You might divide the class into four groups by having students count off from 1 to 4. If you have a large class and want to have students working in small groups, you might set up two identical sets of stations, labelled A and B. In this way, the class can be divided into eight groups, with each group of students rotating through the "A" stations or "B" stations.

Number and Operations

Set 1: Factors, Multiples and Prime Factorisation

Instruction

Goal: To provide opportunities for students to develop concepts and skills related to factors, multiples and prime factorisations

Maths Standards

Number and Operations

Understand numbers, ways of representing numbers, relationships among numbers and number systems: use factors, multiples, prime factorisation and relatively prime numbers to solve problems.

Student Activities Overview and Answer Key

Station 1

Students use a dice to generate two-digit numbers. Then they work together to decide if each of the numbers is prime or composite. If the number is composite, they find the prime factorisation. Finally, students describe the strategies they used to identify the numbers as prime or composite.

Answers: Answers will depend on the numbers that are rolled.

Possible strategies: Any two-digit even number is composite; any number ending in 5 is divisible by 5, so it is composite; recognise familiar primes, such as 11 and 13.

Station 2

Students are given 12 red tiles and 18 blue tiles. They are asked to arrange the tiles in rows so that each row contains the same number of tiles and so that each row contains only red tiles or only blue tiles. The rows must also be as long as possible. When students have arranged the tiles following these rules, they reflect on how their arrangement is related to the greatest common factor of 12 and 18.

Answers: Each row has 6 tiles. There are 2 rows with 6 red tiles in each row and 3 rows with 6 blue tiles in each row. The number of tiles in each row (6) is the greatest common factor of 12 and 18.

Station 3

Students use a highlighter to highlight all the numbers less than or equal to 100 that are multiples of 8. Then they use a different colour to highlight all the multiples of 12. Students work together to check that the multiples are highlighted correctly. Then they look for common multiples (numbers highlighted in both colours) and identify the least common multiple.

Answers: Multiples of 8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96

Multiples of 12: 12, 24, 36, 48, 60, 72, 84, 96

Geometry and Measurement

Set 1: Appropriate Units of Measurement

Instruction

Goal: To provide opportunities for students to develop concepts and skills related to using appropriate units for measurement

Maths Standards

Geometry and Measurement

Understand measurable attributes of objects and the units, systems and processes of measurement: understand, select and use units of appropriate size and type to measure angles, perimeter, area, surface area and volume.

Apply appropriate techniques, tools and formulas to determine measurements: select and apply techniques and tools to accurately find length, area, volume and angle measures to appropriate levels of precision.

Student Activities Overview and Answer Key

Station 1

At this station, students will measure a variety of rectangular prisms and find the volume of these objects. Students will use appropriate measuring techniques and units.

Answers: Answers will vary; centimetres; square centimetres; cubic centimetres; it depends on how many times you multiply centimetres

Station 2

Students will measure the length and width of the classroom to determine its area. They will explain their use of appropriate units.

Answers: Answers will vary; answers will vary; metres because centimetres are too small; answers will vary; use the metre ruler, choose units that were large, etc.

Station 3

Students find the approximate volume of their hand. They do this by finding the volume of six parts of the hand and adding that together. They then comment on their findings.

Answers: Answers will vary; cubic centimetres, etc.; fingers/palms are not exactly rectangular prisms; answers may vary

Geometry and Measurement

Set 1: Appropriate Units of Measurement

Instruction

Station 4

Students choose five objects in the classroom. They find the perimeter of these objects then reflect on the units that they chose to measure the objects in.

Answers: Answers will vary.

Materials List/Set Up

Station 1 variety of items that are rectangular prisms; rulers

Station 2 one-metre ruler

Station 3 rulers; calculators – enough for all group members

Station 4 one-metre ruler